

REMARKS

Claims 1-14, 17, 22 and 24-41 remain pending in the application. Claims 15-16, 18-21, 23 and 42 are cancelled. The Office Action indicates claims 13, 29 and 30 are directed toward allowable subject matter and would be allowable if rewritten in independent form. Applicant respectfully requests that this matter be held in abeyance until the remarks presented herein have been considered.

By way of this amendment, Applicant has made a diligent effort to place the claims in condition for allowance. However, should there remain any outstanding issues, it is respectfully requested that the Examiner telephone the undersigned at (858) 552-1311 so that such issues may be resolved as expeditiously as possible.

Claim Rejections - 35 U.S.C. §112

Claims 1-3, 17, 40 and 41 were rejected under 35 U.S.C. § 112 second paragraph for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as his invention.

Claims 1-3, 40 and 41 recite “outputting images appearing on the plane as new moving pictures” and claim 17 recites “forming new pictures by sequentially outputting frames formed in said synthesizing”. The Office Action asserts that the claims are unclear because Applicant’s specification discloses outputting a single synthesized frame from sequential frames that vary along a time axis, (Office Action, Page 2, Lines 18-22). The Office Action avers that this makes it unclear whether the frames cut by the a surface at a particular time instance are synthesized output to generate a final synthesized image or whether several synthesized images are formed from the frames, (Office Action, Page 3, Lines 1-4). Applicant respectfully traverses.

Applicant submits that the claim language that recites “outputting images” and “outputting frames” is definite and means that more than a single image (frame) is output.

The output of multiple images (frames) is also supported in the specification. For example, the specification teaches a system for sequentially generating the frames of a moving picture. The

frames are generated by an image conversion unit 60 having an image formation unit 66 that forms frames by synthesizing data for each read out pixel line, (Application, Page 15 Lines 19-20 - Page 16 Lines 1-2). Images synthesized by the image formation unit 66 are sequentially written to a display buffer 74, (Application, Page 16, Lines 21-24). The display buffer 74 holds the images for an image data output unit 76 that retrieves the images, (Application Page 17, Lines 6-9). The image data output unit 76 outputs sequentially the frames stored in the display buffer 74 as to output moving pictures, (Page 17, Lines 9-11). Thus, Applicant's specification expressly teaches outputting more than one image (frame).

Notwithstanding the specification's express teaching of the output of more than one image (frame), it would be understood by a person of ordinary skill in the art that more than a single image (frame) would need to be output from the image conversion unit 60. Specifically, the image conversion unit 60 must form and output images to generate a moving picture since a moving picture consists of multiple frames. Thus, the specification would not be interpreted by one of ordinary skill in the art to mean outputting a single synthesized image as suggested by the Office Action.

Claim Rejections - 35 U.S.C. §101

Claims 40 and 41 were rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

Claims 40 and 41 recite statutory subject matter because they recite a computer product embodied on a computer readable medium. The proper statutory subject matter test for claims that recite computer functions is explained in the Manual of Patent Examining Procedure. The MPEP states "it is only when the claimed invention taken as a whole is directed to a mere program listing, i.e., to only its description or expression, is it descriptive material *per se* and hence nonstatutory", (MPEP 2106.01 I). Since claims 40 and 41 recite a computer readable medium, the claims are directed to more than a mere computer program listing and therefore are statutory subject matter.

Applicant also respectfully submits that claims 40 and 41 were amended in our amendment dated January 5, 2006, as a result of an objection raised in the Office Action of October 7, 2005. To

overcome the objection, Applicant adopted the claim language specifically suggested by the Office Action.

Claim Rejections - 35 U.S.C. §103

Claims 1-9, 14, 17, 22, 24-28, 31-36, 40 and 41 were rejected under 35 U.S.C. §103 as being unpatentable over JP-09-035040 (Seki). Applicant respectfully traverses.

The examiner states in the current office action that Applicant's previous argument relied on features not recited in the rejected claims, (Office Action, Page 17, Line 18- Page 18 Line 3).

Applicant has amended claims 1 and 40 to recite "a plane perpendicular to the time axis" and puts forth its previous arguments that Seki fails to teach this feature.

In addition, claims 1 and 40 now recite a method (function) of "projecting an image that appears on the cut surface onto a plane perpendicular to the time axis". The Office Action asserts that Seki teaches "outputting an image appearing on the plane as a new moving picture, by varying the cut surface in time" at Lines 5-9 paragraph 11, Lines 5-9 (Office Action Page 5 Lines 1-2). Seki, however, merely teaches that "said time-space image $I(x,y,t)$ is cut by a plane parallel to the time axis...". Seki's plane and cut surface are in fact the same surface. Claims 1 and 40 recite a cut surface and a plane different from the cut surface. Applicant's plane and cut surface cannot be the same surface because the image that appears on the cut surface is projected on a plane perpendicular to the time axis. Seki thus fails to disclose or suggest projecting the cut surface onto a plane perpendicular to time axis, making claims 1 and 40 patentable over Seki.

Moreover, Seki is directed to outputting the trace of a moving object as an image. It is essential to Seki's method that the positions of an object occurring at multiple points of time be represented in a single still image, (Seki Translation, Paragraph 4 and 5). This objective of Seki could not be achieved if a series of images are created by generating images at multiple points of time respectively. Seki's output, a trace cross sectional image, is not a series of images generated one after another and output as a new moving picture. Seki's trace cross-sectional image $L(s,\theta; t)$ is nothing more than a still image being output (Seki, Paragraph 0012 lines 1-2). Furthermore, there is

no description in Seki indicating that the Seki's cut surface varies in time.

The Office Action also asserts "it would have been obvious to one of ordinary skill in the art at the time of invention to enable the output of several synthesized images ... enable a user to animate the movement of several objects ... through generation of several synthesized images, (Office Action Page 5, Lines 7-13)". Applicant disagrees.

Seki's purpose for generating a synthesized image is to represent a moving object as a single still image. Modifying Seki to generate motion picture animation as proposed by the Office Action would result in a device that generates images showing movement of the object that is altered from the movement depicted in the original images. Seki's purpose is to represent the movement of an object as a single still image and modifying Seki as proposed by the office action would result in animated images that do not show the true movement of the object. Thus the Office Action's proposed modification results in a device that makes Seki's device inoperable for its intended purpose.

[I]t is generally settled that the change in prior art device which makes the device inoperable for its intended purpose cannot be considered to be an obvious change. (Hughes Aircraft Co. v. United States, 215 U.S.P.Q. 787, (Ct.Cl. Trial Div. 1982)

The structural differences between Seki and Applicant's invention derive from the very different purposes for which the respective technologies are used. Seki's device pertains to a technology for turning an object trace appearing on the cut plane into an image for the purpose of representing the object's movement trace, (Seki, Paragraphs 1,4 and 5). In contrast, Applicant's recited invention is directed toward converting original moving images into new images by referring to original moving image frames of different time values to obtain pixel values for the new image frames. As such, Seki's device and Applicant's invention are fundamentally different in purpose and operation.

Claim 4 recites "an image conversion unit which regards the original moving pictures ...". The Office Action asserts Seki teaches this limitation at paragraph 6, lines 6-9 and avers that Seki teaches " a new moving-picture frame the images appearing on the plane obtained by

varying the cut surface in time in said image conversion unit”, (Office Action, Page 7, Lines 11-13). Applicant traverses.

Seki teaches that three-dimensional time-space images before being cut are formed of consecutive images, (Seki, Paragraph 6). Seki fails to teach an image conversion unit that forms new moving pictures formed of consecutive images. As explained above, the single image output of Seki is not a moving picture. Moreover, as explained above, modifying Seki’s device to generate a series of moving pictures would render Seki’s device inoperable for its intended purpose and make the change unobvious.

Claim 17 recites “forming new moving images by sequentially outputting frames formed in the synthesizing”. The Office Action asserts that this limitation would be obvious based on the teachings in paragraph 15 of Seki, (Office Action, Page 10, Lines 14-21). As explained above, turning Seki’s device into a device that produces a series of images for moving pictures would render Seki’s device inoperable for its intended purpose and make the change unobvious.

Claims 22, 24 and 41 recite “sequentially output(ing) the frame synthesized and reconstructed by said image conversion unit”. The Office Action asserts that Seki suggests this limitation in paragraph 11 of Seki, (Office Action, Page 10, Lines 14-21). As explained above, turning Seki’s image into a device capable of generating sequentially frames (images) would render Seki’s device inoperable for its intended purpose and make the change unobvious.

Claims 2, 3, 5-9, 14, 25-28, 31-36 depend from claims 1, 4, 17, 22, 24 and 40-41 are patentable for the same reasons. Accordingly, Applicant respectfully requests that this rejection be withdrawn.

CONCLUSION

Applicant submits that the amendments and remarks presented herein place all pending claims in condition for allowance and early notification of the same is respectfully requested.

Respectfully submitted,
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